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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT: Memran, Louis I. EXAMINER: Trost  
 SERIAL NO: 10/002, 382 ART UNIT: 2683  
 For: System for utilizing vacuum tubes in computer audio-circuitry  
 Filed: 10/20/01

PETITION TO MAKE SPECIAL PURSUANT TO  
MPEP- 708.02 (II) AND 37 CFR 1.102

*duplicate  
pet. paper #4*  
 U.S. Patent and Trademark Office  
 Asst. Commissioner for Petitions  
 Box DAC  
 Washington, DC 20231

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FEB 24 2003

Technology Center 2600

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This is a petition under MPEP 708.02 to make the instant application special by reason of infringement of the invention thereof.

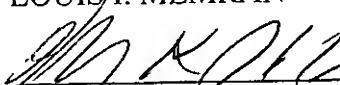
The petition fee under 37 CFR 1.17(i) should be charged to PTO Deposit Account No. 502557. Applicant is a small entity.

Also enclosed is an Opinion of Patentability and an Opinion of Infringement which, collectively, satisfy the requirements of MPEP 708.02 (II).

02/20/2003 HLE333 0000007 502557 10002382  
 01 FC:1460 130.00 CH

Respectfully submitted,  
 LOUIS I. MEMRAN

By

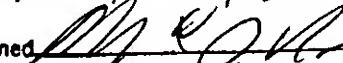
  
 Melvin K. Silverman  
 Reg. No. 26,234

500 WEST CYPRESS CREEK ROAD  
 SUITE 500  
 FORT LAUDERDALE, FLORIDA 33309  
 Tel: (954) 351-7474  
Enclosures: Opinion of Patentability  
 Opinion of Infringement

I HEREBY CERTIFY that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner of Patents and Trademarks, Washington, D.C.

20231, on the 7 day of Feb 2003

Signed

  
 Melvin K. Silverman  
 Reg. No. 26,234

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

APPLICANT: Memran, Louis I. EXAMINER: Trost  
SERIAL NO: 10/002, 382 ART UNIT: 2683  
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**OPINION OF PATENTABILITY**

U.S. Patent and Trademark Office  
Asst. Commissioner for Petitions  
Box DAC  
Washington, DC 20231

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Technology Center 2600

Dear Sir:

Currently, solid state devices such as transistors and the like are used in IC boards for the amplification of audio signals in computer audio circuitry. Transistors are compact, cheap and reliable components. However, transistors are unable to produce an audio sound which is particularly pleasant to the human ear. In low cost digital-to-analog converters, the sound which the transistors produce is often harsh. This technology therefore does not enhance the sound quality of low cost speakers which are employed with most personal computers today. Conversely, vacuum tubes, where used at all in contemporary electronics, are employed in expensive audio systems which require transformers and ancillary vacuum tubes for their operation.

This invention provides a system and means of integrating vacuum tubes into the motherboard of a personal computer to thereby furnish, to the otherwise pedestrian speakers thereof, high quality audio characteristics.

I have caused to be effected a careful and thorough search of the art. As a result, the only art now known to the Applicant in which vacuum tubes are employed in analog-

to digital or digital-to-analog technology relate to the areas of audio processing; sound mixing, often as a part of a loudspeaker control circuit; and electric instruments.

This technology is reflected in the following:

U.S. Patent No. 5, 721, 784 (1990) to Bernardo, entitled Asymmetrical Driver for Asymmetrical Loudspeakers.

U.S. Patent No. 5,789,689 (1998) to Doidic, entitled Tube Modeling Programmable Digital Guitar Amplification System;

U.S. Patent No. 802, 182 (1998) to Pritchard, entitled Audio Process Distortion; and

U.S. Patent No. 6, 350, 943 (2002) to Suruga et. al., entitled Electric Instrument Amplifier.

A copy of the Abstract of each of the above is enclosed herewith. As may be noted therefrom, traditional vacuum tubes, where combined in some fashion with contemporary digital circuitry, relate almost exclusively to audio amplifiers and amplifiers for electric instruments, such as electric guitars. Accordingly the art does not teach a practical means of integrating a vacuum tube into a motherboard of a CPU of a personal computer having, as an effect thereof, the enhancement of the audio quality of otherwise conventional speakers associated with the personal computer.

I therefore am of the opinion that the invention, as claimed, is clearly allowable over all effective art of record.

Respectfully submitted  
LOUIS I. MEMRAN

By



Melvin K. Silverman  
Reg. No. 26,234

Enclosures:

Abstracts of patents  
set forth above



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT: Memran, Louis I. EXAMINER: Trost

SERIAL NO: 10/002, 382 ART UNIT: 2683

For: System for utilizing vacuum tubes in computer audio-circuitry

Filed: 10/20/01

OPINION OF INFRINGEMENT

U.S. Patent and Trademark Office  
Asst. Commissioner for Petitions  
Box DAC  
Washington, DC 20231

Dear Sir:

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**Technology Center 2600**

I, the Applicant's attorney of record, have reviewed the attached articles of AOPEN.COM, Inc. of Taiwan, Republic of China concerning an AX4B-533 vacuum tube and its related motherboard. In or about June, 2002, AOPEN introduced into the United States a chipset which integrated the AX4B-533 tube into a CPU motherboard utilizing an Intel 845E chip. This incorporation of a vacuum tube into such a chipset was for the purposes of enhancing the audio quality of speakers associated with a personal computer and, as such, falls within the scope of Applicant's Claim I which reads as follows:

"1. A tube card for use with computer audio circuitry comprising:  
at least one vacuum tube, each said vacuum tube having an input and an output;  
a DC-to-DC voltage converter supplying high voltage to said vacuum tube; and  
an analog output signal from a sound input into said at least one vacuum tube,  
said output of said at least one vacuum tube connected to an external device."

Further, independent Claim 5 of the present application reads as follows:

“5. A combination tube card for use with computer audio circuitry, comprising:  
at least one vacuum tube, each said vacuum tube having an input and an output;  
a DC-to-DC converter supplying high voltage to said vacuum tube; and  
a sound chip having an analog output, said analog output connected to an input of  
at least one vacuum tube, said output of said at least one vacuum tube connected  
to an external device.”

The above claims thereby cover the use of the Applicant's technology with reference to both sound cards and sound chips, and also relate to the use thereof within a motherboard of a computer as, for example, is reflected in Claim 6 which reads as follows:

“6. The combination of a tube card for use with computer audio circuitry of claim 5 wherein:

    said sound chip having a digital input/output, said digital input/output connected to a motherboard of a computer.”

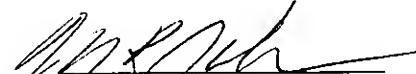
In view of the above, the motherboard offered by AOPEN.COM since June, 2002 falls within the scope of one or more of the claims of the instant application.

Upon information belief, AOPEN.COM not only offers their products on the Internet but, as well, sells through U.S. distributors and has been doing so for several months under the trademark COMPUTUBE.

The undersigned does not know of any patent held by AOPEN.COM or its distributors. Further, given the publication of the instant Application on or about May 2, 2002, it is unlikely that an application for patent directed to the COMPUTUBE could have been filed unless, unknown by the undersigned, the same had already been filed by

such date. In any event, such filing would, in all likelihood, have been well subsequent to the Applicant's domestic priority under Serial No. 60/245, 285, of November 1, 2000.

Respectfully submitted  
LOUIS I. MEMRAN



Melvin K. Silverman  
Reg. No. 26,234

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AOpen manufactures computer components as part of the successful \$7 billion Acer group. The Acer group has more than 22 years of experience in the PC industry and over 700 patents in PC technology. Like AOpen, computer components function as part of a whole. To be successful, each component must work flawlessly within a broad range of other computer products. Understanding this, AOpen dedicates its engineering expertise to the production of components of quality, durability, and the utmost flexibility.

From bare systems, motherboards, CD-ROM/CD-RW/DVD drives, and monitors to multimedia add-on cards, and communication solutions, AOpen products offer the ultimate in performance and compatibility, unmatched by any other PC manufacturer in the world. Above all, to ensure the highest standard of quality, every AOpen product is manufactured and tested in strict ISO ISO14001 certified facilities, complying with the world's most rigid safety standards.

The "Open" of AOpen reveals a spirit that derives directly from the union of customers and products. The realization of this has been our drive towards Open Architecture products, customer Open Mind innovation, and our Open Business partnership with customers and distributor

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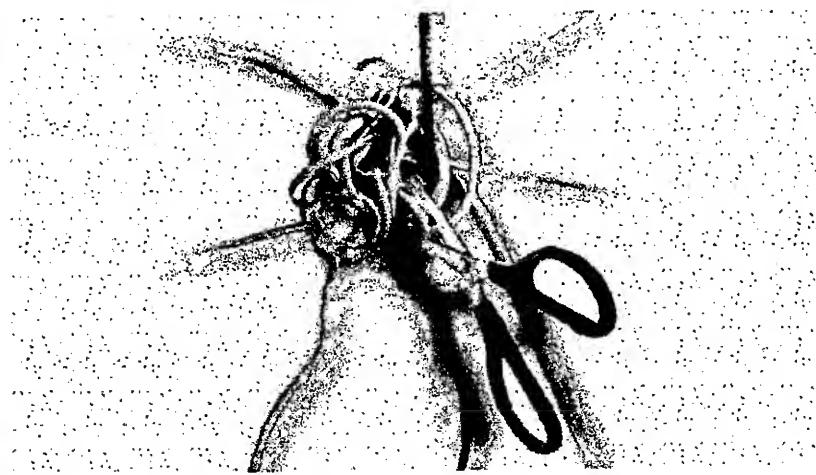


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- [AOpen continues fulfilling its pledge to support RDRAM-based Intel Pentium 4 platform by releasing AX4T-533 Pro motherboard](#) 2002/10/11
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## AOpen releases mainboard with vacuum tubes

By Ana Letícia Sigvartsen

InfoSatellite.com

June 05, 2002

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**AOpen** released yesterday an innovative (and even a little weird at first sight) product. The company is now promoting the world's first vacuum tube motherboard, called **AX4B-533Tube**. Even though the attention in this solution is all turned to the tubes, the chipset is still important, and, in this case, it's the **Intel 845E**.

AOpen explained that the idea didn't come from nowhere and seems to have solid foundations. The **AX4B-533Tube**, said the company, "incorporates the novel, modern-day adoption of an idea that was spawned by the invention of the electric light bulb by Thomas A. Edison back in 1879 - the vacuum tube."

The reason why AOpen decided to put the tubes in the new solution is allegedly to improve audio capabilities considerably. The company is turning its focus to "passionate audiophiles and extreme gamers," who the company expects are interested in having the best in audio technology. The solution can be complemented by retailers with speaker systems and the latest CD and DVD playback devices.

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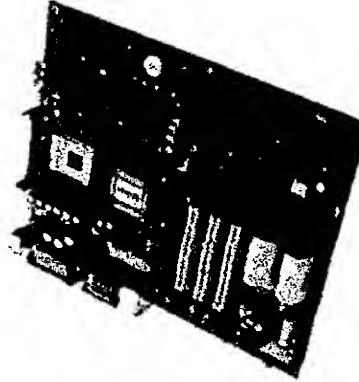
■ special fea



Nvidia launches GeForce FX G80 expected, Nvi yesterday at Fall 2002 its new GPUs - GeForceFX, or NV3x, fair chips are the first graph based on 0.13-micron s process and should also ship with 1GHz DDR-II.

**Pentium 4 breaks 3GHz mark** On March 7, 2002, website ZDNet published an article entitled "Intel reaches 1GHz mark." The piece announced that Intel has broken the 1GHz barrier "with a Pentium III 1,000MHz." Ironically, AMD had reached the 1GHz mark two days earlier, launching the 1GHz Athlon processor. AMD just broke the barrier." [Read More...](#)

**Tablet PCs and evaluta** reported last Microsoft brought the official launch of the Tablet PC Edition. Following software giant's lead, manufacturers started to their Tablet PCs. Here's an overview of some new 1 launched by several compa



A little more about how the idea was born: "We were all together late one night, kicking around lots of crazy ideas when I proposed it would be really cool if we could combine the warmth and depth - tonal realism, if you will - of the sound produced by



**START PAGE**

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*an audio tube, with one of our state-of-the-art motherboards" said Al Peng, product manager at AOpen America. "Laughter turned into raves a few months later when we did our first lab demo of our unique hybrid creation. The reproduced sound was absolutely amazing. It left everyone stunned. What we realized at that moment was how the limitations of typical audio output from a PC as we knew it, had come to an end - and what we were pioneering was a way to literally combine the best of two audio worlds - old and new."*

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AOpen defends the tubes as the best solution in terms of tonality and claims that the tube output stage of the AX4B-533Tube couples the two front digital stereo output channels with tube output, resulting in outstanding quality of sound.

Putting aside the tubes, let's get to the regular specifications: the AX4B-533Tube comes with the i845E chipset design and features DDR SDRAM

memory channels delivering 2.1 GB/s of memory bandwidth to the processor, being made for the Intel Pentium 4 processor with 533MHz FSB. It comes with a 4X AGP slots, supports 4 ports of USB 2.0 and Ultra ATA/100 interface.

The AX4B-533Tube has an estimated street price of \$215 and fully supports ACPI 1.0 and APM 1.2 specs. It comes bundled with Norton Anti-Virus 2002 software.

(Sources: AOpen)

Related news:



Gigabyte has Radeon 8500XT-based card

Nvidia DDR400 chipset spotted at Computex

VIA/S3 Savage XP chip unveiled

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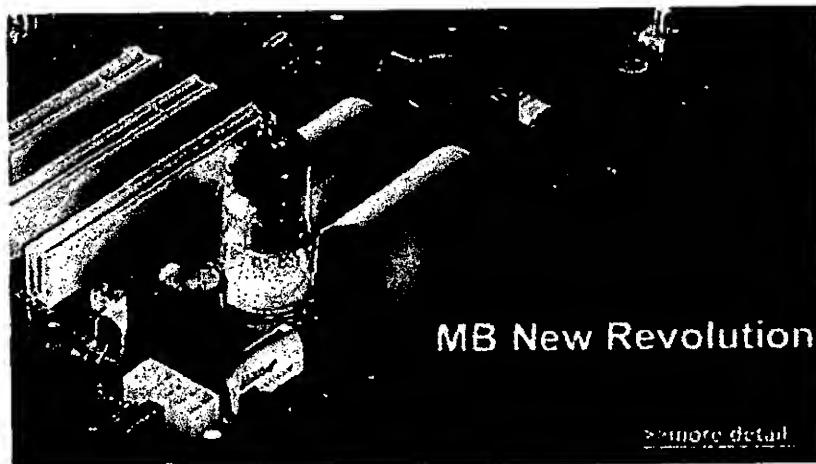
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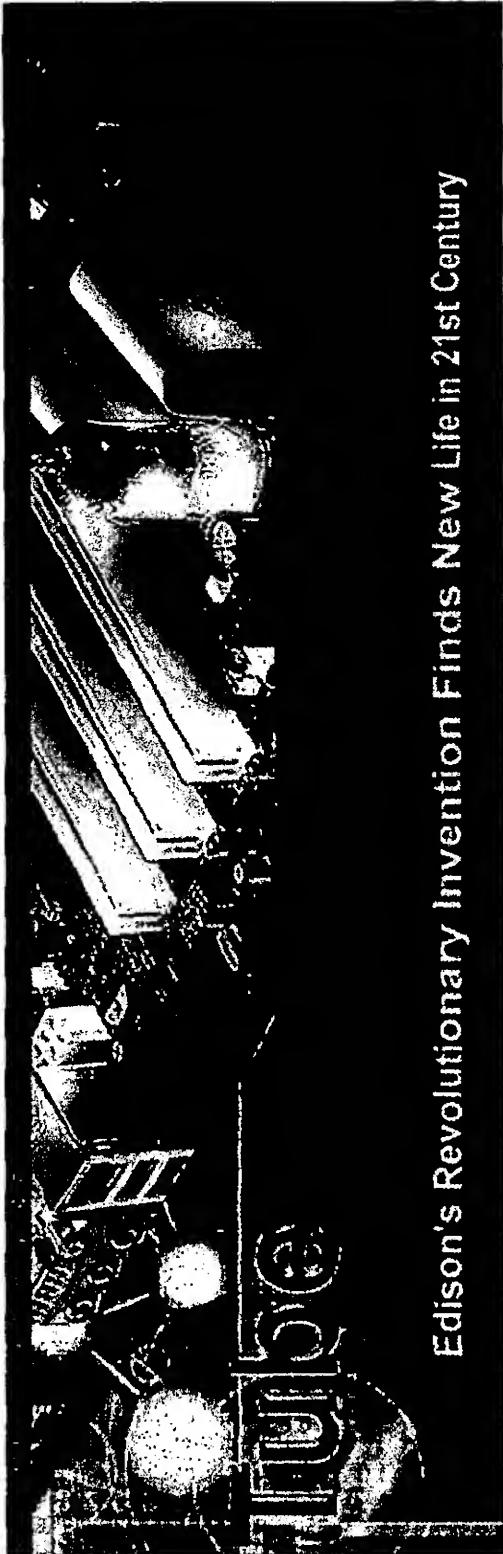
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## Edison's Revolutionary Invention Finds New Life in 21st Century

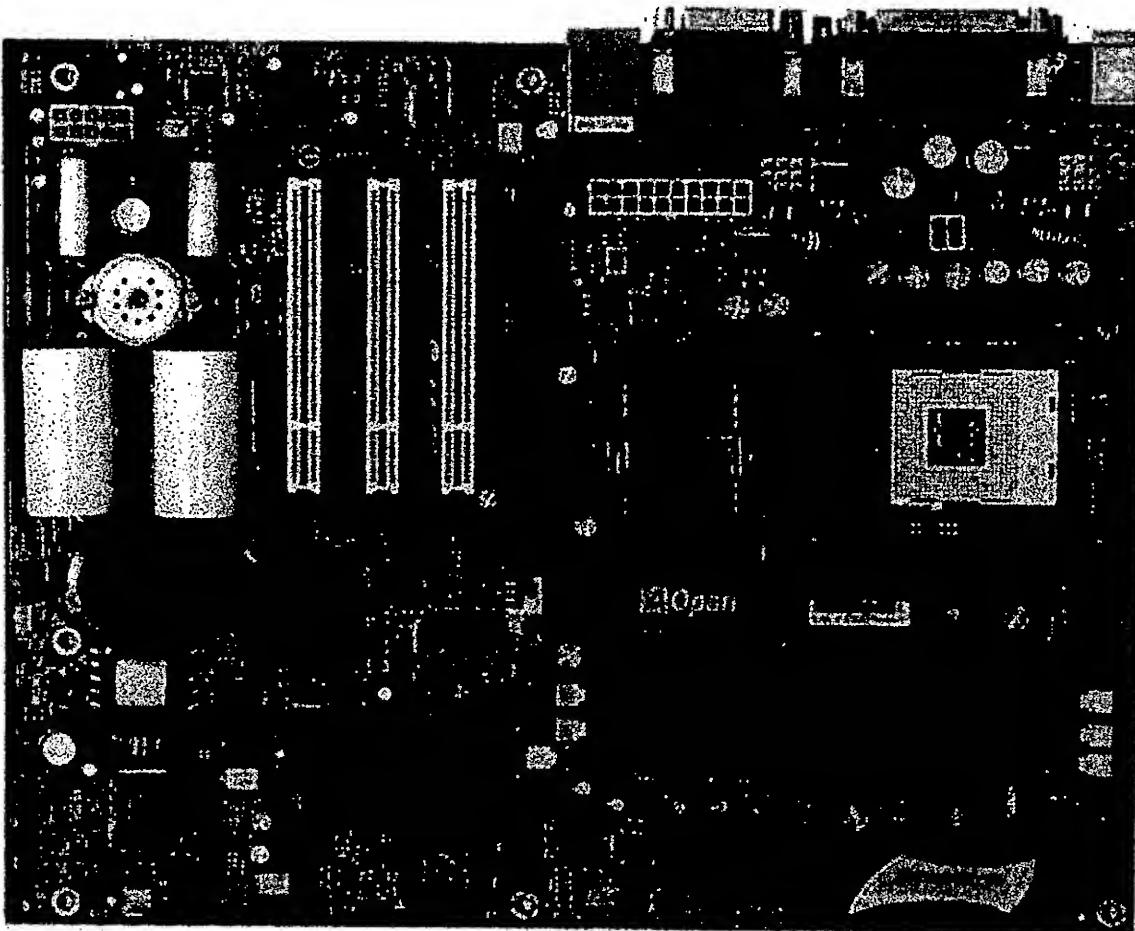
[AX4B-533 Tube](#) – The new Motherboard incorporates the novel, modern-day adoption of an idea that was spawned by the invention of the electric light bulb by Thomas A. Edison back in 1879 – the vacuum tube.

In taking this bold step towards audio perfection, AOpen's hybrid [AX4B-533 Tube](#) unquestionably is targeted to a very exclusive niche market - passionate audiophiles and extreme gamers who are interested in building their own ultimate entertaining PCs. The motherboard is also certain to appeal to retailers that desire to cater to these two eccentric groups with custom-built PCs, delivered with matching speaker systems and the latest CD and DVD playback devices.

If you are interested in [AX4B-533 Tube](#), please fill the application form to leave your information. We will provide you the latest news about Tube as soon as possible. To stop all e-mail tube news from AOpen, click this "Unsubscribe" link to unsubscribe it.

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## AX4B-533 Tube



### Close View of AX4B-533 Tube Motherboard

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US005721784A

## United States Patent [19]

Bernardo

[11] Patent Number: 5,721,784  
 [45] Date of Patent: Feb. 24, 1998

[54] ASYMMETRICAL DRIVER FOR ASYMMETRICAL LOUDSPEAKERS

[76] Inventor: Carmelo F. Bernardo, 12 Street, Lakandula, Angeles City, Philippines

[21] Appl. No.: 593,884

[22] Filed: Jan. 30, 1996

[51] Int. Cl. 6 H04R 1/02

[52] U.S. Cl. 381/89; 381/59

[58] Field of Search 381/96, 89, 59, 381/61

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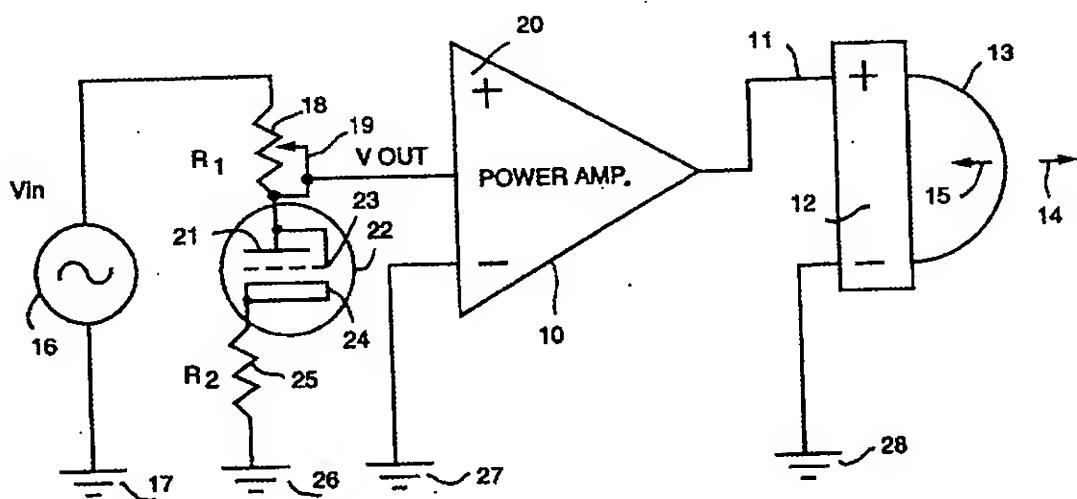
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		381/61

Primary Examiner—Curtis Kuntz  
 Assistant Examiner—Vivian Chang  
 Attorney, Agent, or Firm—Schweitzer Cornman Gross &  
 Bondell LLP

## [57] ABSTRACT

An audio output system, having loudspeakers with an asymmetrical output in response to symmetrical modulated input signals, is provided with a unidirectional limiting circuit for proportionally reducing input signals of a polarity to drive the loudspeaker in the direction of its greatest response. In its basic form, the limiting circuit is a voltage limiting circuit, preferably a voltage divider, which includes a rectifier device. When the driving signal is of a polarity to produce a greater response from the loudspeaker, the rectifier device conducts and the magnitude of the signal voltage is reduced, resulting in substantially greater uniformity of output response of the loudspeaker in both directions. When the limiting circuit is placed on the input side of the power amplifier, the rectifier device advantageously is a vacuum tube connected as a diode. When located in the output stages of the power amplifier, where higher signal voltages are available, solid state rectifier devices may be employed. Multiple asymmetrical loudspeakers may be controlled using a single limiting circuit, provided all such loudspeakers are connected so that their greater response results when the signal thereto is of the same polarity.

9 Claims, 5 Drawing Sheets







US005802182A

**United States Patent** [19]  
**Pritchard**

[11] Patent Number: **5,802,182**  
[45] Date of Patent: **Sep. 1, 1998**

[54] **AUDIO PROCESS DISTORTION**

[76] Inventor: Eric K. Pritchard, Rte. 1 Box 536,  
Berkeley Springs, W. Va. 25411

[21] Appl. No.: 759,128

[22] Filed: Dec. 2, 1996

**Related U.S. Application Data**

[63] Continuation-in-part of Ser. No. 281,019, Jul. 27, 1994.

[51] Int. Cl. <sup>6</sup> H03G 3/00

[52] U.S. Cl. 381/61; 381/65

[58] Field of Search 381/61, 64, 65,  
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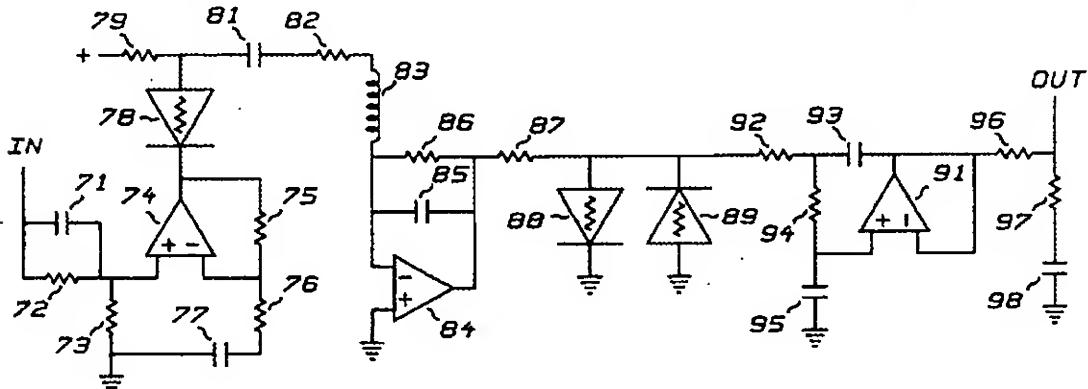
Recording with AC-Bias, p. 472.

*Primary Examiner*—Forester W. Isen*Attorney, Agent, or Firm*—Barnes & Thornburg[57] **ABSTRACT**

The audio process is a signal path having a plurality of filters connected or including distortion means. The prime example of this phenomenon surrounds inductances such as found in magnetic tape recorders, spring reverberators, and transformers. The inductors require a pre-emphasis filter to produce a constant current. Secondly there are the complementary filters associated with the average spectrum of audio which are used to maximize the signal to noise ratio. Ideally the net response of the filters is flat, however, roll-offs at the audio extremes are quite common.

The audio process distortion emulates the distortion of the active devices between the filters such as vacuum tube and magnet non-linearities. Since the distortion devices follow filters, the spectra of distortion is different than the frequency response.

27 Claims, 3 Drawing Sheets





US006350943B1

(12) **United States Patent**  
Suruga et al.

(10) Patent No.: **US 6,350,943 B1**  
(45) Date of Patent: **Feb. 26, 2002**

(54) **ELECTRIC INSTRUMENT AMPLIFIER**

(75) Inventors: Michio Suruga, Inagi; Yoshihiro Suzuki, Tama; Kentaro Matsumoto, Kawasaki, all of (JP)

(73) Assignee: Korg, Inc., Tokyo (JP)

(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: 09/750,861

(22) Filed: Dec. 28, 2000

(51) Int. Cl.<sup>7</sup> ..... G10H 1/12; G10H 1/46

(52) U.S. Cl. ..... 84/603; 84/661; 84/665; 84/DIG. 9; 84/DIG. 10

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(57) **ABSTRACT**

An electric instrument amplifier emulates an audio characteristics of a traditional vacuum-tube type amplifier. The electric instrument amplifier is formed in a single housing for amplifying an audio signal from an electric instrument. The electric instrument amplifier includes an A/D (analog-to-digital) converter for converting a first analog signal from the electric instrument to a digital signal, a digital signal processing circuit for processing the digital signal to add an intended effect to the digital signal, a D/A (digital-to-analog) converter for converting the digital signal processed by the digital signal processing circuit to a second analog signal, a tube amplifier having at least one vacuum-tube for amplifying the second analog signal, and a virtual power circuit formed with semiconductor devices for amplifying or attenuating an audio signal produced by the tube amplifier.

**11 Claims, 7 Drawing Sheets**

